

What Is Claimed Is:

1. A method for manufacturing a composite component, a brake disk in particular, including the following steps:
 - producing a porous ceramic blank;
 - infiltrating or filling the porous ceramic blank with a metal melt,wherein an alloy of copper and at least one additional metal is used as the metal melt, the additional metal being converted via a reaction with at least one reactive component of the blank in such a way that a pore space of a ceramic phase is filled with essentially pure copper.
2. The method as recited in Claim 1, wherein the metal melt is infiltrated at a temperature which is lower than the melting point of copper and is preferably between approximately 680°C and 1,000°C.
3. The method as recited in Claim 1 or 2, wherein the blank, infiltrated with the metal melt, is subjected to controlled post-heating.
4. The method as recited in one of Claims 1 through 3, wherein the blank is provided with a porosity of approximately 50% by volume.
5. The method as recited in one of Claims 1 through 4, wherein the additional metal of the alloy has a lower specific weight than copper, and a CuMg alloy, a CuAl alloy, a CuSi alloy, a CuZr alloy, or a CuTi alloy is preferably used as the alloy.
6. The method as recited in one of Claims 1 through 5, wherein the reactive constituents of the blank are formed by at least one oxide, TiO₂, Al₂O₃ and/or ZrO₂ in particular, of at least one carbide and/or at least one nitride.
7. The method as recited in one of Claims 1 through 6, wherein the blank includes constituents which are inert vis-à-vis the metal melt and are made, in particular, of particles or fibers which are formed by an oxide, a carbide, a nitride, or a boride.

8. The method as recited in Claim 7,
wherein the inert components of the blank are used as reinforcement elements and/or functional elements of the finished composite component.
9. A metal-ceramic component, a brake disk in particular, including a ceramic phase which is provided with a pore space which is filled with essentially pure copper, wherein the ceramic phase includes a conversion product, made up of a reactive ceramic portion and a metal of a copper alloy, which has a lower specific weight than copper.
10. The metal-ceramic component as recited in Claim 9,
wherein the copper alloy is a CuAl alloy, a CuMg alloy, a CuSi alloy, a CuZr alloy, or a CuTi alloy and the conversion product is formed by aluminum oxide and titanium aluminide, MgAl_2O_4 or MgTiO_3 , a silicide such as TiSi_2 or Ti_5Si_3 , by zirconium dioxide ZrO_2 , or titanium dioxide TiO_2 .
11. The metal-ceramic component as recited in Claim 9 or 10,
characterized by a copper content between 20% by volume and 45% by volume, preferably between 25% by volume and 40% by volume, and a ceramic content between 55% by volume and 80% by volume, preferably between 60% by volume and 75% by volume.
12. The metal-ceramic component as recited in one of Claims 9 through 11,
wherein the ceramic portion includes particles and/or fibers made of at least one oxide, at least one carbide, at least one nitride and/or at least one boride.
13. The metal-ceramic component as recited in one of Claims 9 through 12, characterized by a fracture toughness greater than $10 \text{ MPa}\cdot\text{m}^{1/2}$, preferably greater than $15 \text{ MPa}\cdot\text{m}^{1/2}$.
14. The metal-ceramic component as recited in one of Claims 9 through 13 characterized by a thermal conductivity of more than 50 W/mK , preferably more than 70 W/mK .